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amendments.(54) Title: A SEMI-CONDUCTOR DEVICE AND A METHOD FOR VARYING CURRENT DENSITY IN AN ACTIVE REGION OF
A JUNCTION OF THE SEMI-CONDUCTOR DEVICE

(57) Abstract

A semi-conductor laser device (1) comprising a p-type layer (3) and an n-type layer (4) defining a p-n junction (5) with an active light generating region (10). A first electrical contact (6) in conjunction with a second electrical contact (7) defines the active region (10). The first electrical contact (6) defines an outline area (12) for determining the area of the active region (10), and comprises a main contact (15) with a plurality of finger contacts (16) electrically connected thereto and forming actual contact areas (17). The main contact (15) and the finger contacts (16) define non-contact areas (21) within the outline area (12). The finger contacts (16) taper outwardly from their proximal ends (19) to their distal ends (18) for progressively reducing the ratio of the actual contact area (17) to the non-contact area (21) for in turn progressively reducing the transverse current density profile (26) in the active region (10) so that the current density profile (26) substantially tracks the light intensity profile (25) transversely across the active region (10) for avoiding regions of saturated gain adjacent side edges (13, 14) of the active region (10).

